



citizens' bulletin

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Pac Named New Commissioner



Stanley J. Pac was appointed Commissioner of the Department of Environmental Protection today by Governor Grasso effective January 1, 1977.

Mr. Pac has served as Commissioner of the Connecticut Department of Motor Vehicles since February of 1975.

DEP's new Commissioner served six years in the General Assembly, two terms as a State Representative (1967-70) and one term as a State Senator (1971-72). He served as chairman of the Public Health and Safety Committee and the Environment Committee and was instrumental in passage of legislation creating the Department of Environmental Protection and the state's Solid Waste Management Plan. In 1972 as a member of the state senate, he was chosen by his fellow senators as the outstanding freshman.

Mr. Pac also served as a member of New Britain Charter Revision Committees from 1967-71.

In 1971, Mr. Pac was elected Mayor of New Britain, Connecticut, and held the post

until his appointment as Motor Vehicle Commissioner. During his three years in office, the city's tax rate remained constant. Among other accomplishments, he was responsible for expansion of the New Britain Library and initiated a management study of city government aimed at consolidating functions for greater efficiency.

During his tenure as mayor, Mr. Pac served as chairman of the Regional Solid Waste Disposal Committee incorporating New Britain, Berlin and Newington for the design of a regional solid waste disposal facility, and served as an adjunct professor teaching government administration at Central Connecticut State College.

Born in New Britain, July 2, 1923, Mr. Pac graduated from New Britain High School and attended Morse College of Business Administration. He was in the retail liquor business for 25 years from 1946 until 1971.

Mr. Pac served in the United States Marines from 1942-1946 in the South Pacific. He has been active as a corporator of the Wheeler Hospital and the New Britain General Hospital and has been a member of the Elks Lodge, Veterans of Foreign Wars, American Legion, Pulaski Democratic Club and Sacred Heart Church in New Britain.

Commissioner Pac resides in New Britain with his wife and six children.

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From the Editor's Desk

It's a new year. And new this month in the Citizens' Bulletin is the column prepared by DEP's Coastal Area Management Unit. (Pg. 6.) It will appear regularly during 1977.

We are now preparing and planning for future issues of the Citizens' Bulletin. Many of the suggestions we have received from readers during our recent subscription drive are being incorporated in our planning efforts.

We have received many complimentary statements concerning the Bulletin and appreciate your comments.

As for the criticisms we are working very hard in those areas where improvements are necessary. Perhaps the major reader criticism has centered on outdated public hearing information and other notices that we publish. To rectify the situation we have begun to print a public hearing supplement insert which is prepared one day prior to the general mailing of the Bulletin.

The insert, however, may not alleviate the problem in some instances, because of delays in the mail. One subscriber in New Jersey reported that his November issue took 15 days to reach him, and even within Connecticut it takes 5-7 days to reach many of our readers. Our goal is to mail on the first of each month so that you will receive your copy no later than the end of the first week of that particular month.

Many of our readers forwarded excellent suggestions on topics of interest and we plan to follow up on many of them in the months to come. However, sometimes we find ourselves in a dilemma. Our readership is wide and varied and while some people write in suggesting "more hunting and fishing stories" others say "less hunting stories; I'm interested in legislation, hearings, etc."

Our readers have requested articles on a range of subjects -- everything from fall mushrooms, solar energy, and the New Haven incinerator to salmon in the Farmington River, "more stories on Regions III and IV," and "ways small towns can deal with small streams."

We can't guarantee that the Bulletin will be of interest to all of the people all of the time, but hopefully we can firm up our production schedule, diversify our story content, and perform the 101 other tasks that result in a quality publication. Our resolution in 1977 is to be able next December to conclude as one of our resubscribers already has, that "...as far as the Bulletin goes, everything is fine!"



Thomas J. Turick

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DEP Citizens' Bulletin

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Cross Country Skiing In Connecticut

The experts tell us: "If you know how to walk, you already know how to cross-country ski." And it's true.

One of the oldest winter activities known to man, cross-country skiing or ski-touring, has enjoyed an enthusiastic revival and new growth in Connecticut during the past few years.

As downhill (Alpine) ski areas become more congested and equipment more expensive, more and more people are discovering this inexpensive and extremely enjoyable activity. Ski-touring has many advantages including low initial investment, minimum recurring expense, easy access to usable areas and the enjoyment of peace and quiet.

Basic ski-touring equipment consists of a pair of narrow skis (generally 2" to 2 1/4" wide and weighing from 3 to 6 lbs. depending on the skier's experience and degree of proficiency), pin-type bindings, good light weight touring boots and ski poles of the proper length (reaching to the armpits while standing upright). Advice on equipment can be obtained from dealers or from any of the many skiers' organizations in the State.

Clothing for cross-country skiing should be loose fitting to allow maximum freedom of movement. Layers of clothing should be worn to avoid the problems created by clothes that are too light or too heavy. A lightweight pack including first aid kit, matches and other emergency supplies is highly recommended. Including a wind breaker or sweater in the pack can also provide the means for adapting to changing weather conditions.

General outdoor safety precautions should always be observed. No individual should try cross-country skiing alone and even small groups should be sure to notify friends or relatives of their route and planned schedules.

Recommended Areas:

The Department of Environmental Protection wishes to encourage the expansion of cross-country skiing as an environmentally sound form of recreation. There are no basic restrictions that would prohibit cross-country skiing in any of Connecticut's State Parks or Forests. The skier should become familiar with the area, however, and definitely be aware of other permitted recreational uses. Most State Forests are open to hunting during part of the cross-country skiing season. Snowmobiling is permitted on specially designated trails in certain State Forests. Parking facilities should also be considered in planning ski-touring activities.

The following areas are recommended as offering reasonably level terrain making them particularly well suited to new skiers.

REGION I

J.A. Minetto State Park

Located within a federal-state flood control project on Hall Meadow Brook in Torrington along Route 272. Large flat, open meadows of easy grade. Winter parking provided.

Sunnybrook State Park

Large open meadows behind flood storage dam provides gentle grades for leisurely touring. Located within the city limits of Torrington on the East Branch of the Naugatuck River.

Tunxis State Forest

Located in the town of Hartland. Trails utilize old logging roads and unplowed forest roads in the vicinity of Pine Mountain Road off Route 179.

Mohawk State Forest

In Western Connecticut. On top and east of the Mohawk Ski area, between Cornwall and Goshen on Rte. 4, just as road passes crest. Drive in about 1 mile and try trails around Appalachian Trail leantos.

REGION II

Osbornedale State Park

In the town of Derby. Osbornedale offers wooded trails and open fields having moderate slopes. Located off Route 34 two miles north of the center of Derby.

Seth Low Pierrepont State Park

In the town of Ridgefield off Route 116. Seth Low Pierrepont State Park offers improved wooded trails featuring moderate to steep terrain. Excellent views from atop the ridge are an attraction.

Wadsworth Falls State Park

Open all year. Wadsworth Falls State Park features unplowed park roads through wooded and semi-open land. Trails are of gentle slope and limited winter parking is available. Follow Route 66 and 157 westerly from Middletown.

State Bridle Trail

Covering five towns in southwest-central Connecticut, the Bridle Trail extends for (10.4) miles along a former railroad right-of-way. The trail is nearly level and crosses several town and state roads. Route 67 in the town of Southbury provides an access crossing.



REGION III

Meshomasic State Forest

A popular trail for ski-touring begins along the Blue Blazed Hiking path called the Shenipsit Trail located northeast of Great Hill Pond. Start at the side of the pond at the end of the paved road off Penfield Road and Route 66. Grades are of moderate steepness through woodland.

Nathan Hale State Forest

Wooded trails of gentle slopes are featured at Nathan Hale State Forest. Marked paths used for horseback riding seasonally are reached from Route 31 in Coventry and paved town roads.

REGION IV

Natchaug State Forest

Natchaug State Forest provides unplowed woods roads and old logging paths for use by ski-tourers. Located off Route 198 in Eastford, the entrance is marked by a large, wooden shield sign. Slopes are gentle to moderate.

Nipmuck State Forest

Much of the town of Union contains state forest lands suitable for ski-touring. Trail grades are moderate to steep and mostly wooded. Walking trails and forest roads near Morey's Pond and the Laurel Sanctuary of Route 190, just west of its junction with Route 89.

Pachaug State Forest

Many unplowed forest roads, logging roads and foot trails are available for ski-touring in the town of Voluntown. Gentle slopes are featured running through lightly wooded areas. Unplowed roads offer access to a large block of wooded terrain west of the forest headquarters on Route 49 one mile north of the center of Voluntown.

For more detailed information on snow conditions, plowing and park accessibility, DEP's Regional Headquarters can be particularly helpful. They are open from 8:30 to 4:30 Monday through Friday. Their locations and telephones are as follows:

DEP REGION I
P.O. Box 161
Pleasant Valley 06063
379-0771

DEP REGION III
RR2, Box 150A
East Hampton 06424
295-9523

DEP REGION II
Judd Hill Road
Middlebury 06762
758-1753

DEP REGION IV
State Forest Nursery
RFD I
Voluntown 06384
376-2513

Information Sources:

Among the most valuable sources of information on equipment, lessons, organizations, open areas and organized tours is the Eastern Ski Association, 22 High Street, Brattleboro, Vermont 05301, telephone (802) 254-6077. The Hartford Chapter, American Youth Hostels, 1007 Farmington Avenue, West Hartford, Connecticut 06107 can also be extremely helpful. Local recreation departments can provide information on organized programs within their communities.



Living in the Snow for the Weekend

While many seek shelter indoors to group around the front of the fireplace and swap stories of the year gone by, the more hearty recreationist is out pitching his tent, gathering kindling, and cooking over an open fire.

Where to Camp

- Region I - Housatonic Meadows State Park - 25 sites. 1 mile north of Cornwall Bridge on Route 7.
- Region II - Kettletown State Park, Pump Field-30 sites. 3-1/2 miles south of I-84, Kettletown Road to Georges Hill Road; 0.7 mile to park entrance.
- Region III - Cockaponset State Forest 12 sites. 2-1/2 miles west of Chester on Route 148; north on Cedar Lake Road 2 miles.
- Region IV - Pachaug State Forest, Mt. Misery Area-20 sites. Off Route 49, north of Voluntown.

In Connecticut between October 1, 1976 and February 28, 1977 public camping is allowed in selected State parks and forests.

Off season camping in Connecticut's parks and forests is not something new. The program has been in effect for more than twelve years. But new this year is the no-charge policy for use of the campsites.

Campsites are issued on a first-come, first-served basis. The camp stay is limited to three consecutive nights. Water and sanitation facilities are provided.

William Miller, Director of DEP's Parks and Recreation Unit, reports that so far the number of off season campers has been noticeably low. "The weather has been against us," Miller said. "I expect that the statistics will show a dramatic increase in campers during the hunting and skiing seasons."

DEP makes special provisions for non-profit youth groups that wish to camp off season. Various parks and forests throughout the State are open exclusively to group camping. There is no fee, but reservations are necessary.

For a listing of these areas and for further information on the winter camping program contact:

Parks and Recreation Unit
Department of Environmental Protection
State Office Building
Hartford, Connecticut 06115
Tel: 566-5524



I-86 Widening

Laforte Recommends Approval

Hearing Examiner Joseph D. Laforte, Principal Environmental Analyst with the Connecticut Department of Environmental Protection, submitted his recommendation to Commissioner Joseph N. Gill for the approval of an Indirect Source Permit for the widening of Route I-86 in the Towns of Vernon, Tolland and Willington.

"This recommendation," Laforte said, "is based on the finding that there will be no violation of U.S. Environmental Protection Agency or Connecticut DEP standards for carbon monoxide, hydrocarbons or nitrogen oxides in the areas in question."

Under its administrative regulations, the DEP requires new or modified indirect sources of air pollution to obtain a construction permit. The application for the I-86 permit was filed by the Connecticut Department of Transportation, which also requested a public hearing on the proposed construction project. Before DEP Commissioner Gill renders a decision on the recommendation, intervenors have ten days from receipt of the hearing report to petition the Commissioner for oral arguments.

The hearing was held on five days--August 4, 11, 16, 23 and 24. Intervenors included The League of Women Voters of Vernon, Mrs. Marilyn McGinley; The Connecticut Laborers, Teamsters and Operating Engineers, Mr. William Huebner; and The Connecticut Citizens' Action Group, Attorney Marshall Berger. In addition to the formal submissions of the intervenors, public testimony was presented by concerned citizens in the affected communities.

Offshore Oil Exploration: What Does It Mean?

Development of oil and natural gas reserves on the Outer Continental Shelf (OCS) is deemed necessary if the U.S. is to meet its energy needs through the 1970's and 1980's. This period is a critical one in terms of energy demand and supply because alternative energy sources will not be sufficiently developed to replace oil and natural gas. In response, the U.S. Department of the Interior has authorized the sale of leases granting rights to extract petroleum products from specific tracts on the OCS.

One of the three major leasing areas on the Atlantic OCS is the Georges Bank Basin located off the coast of New England. A North Atlantic Oil and Gas Lease Sale offering 206 tracts on Georges Bank is proposed for May, 1977. Interior's Geological Survey Division (USGS) estimates that from 180 to 650 million barrels of oil and from 1.2 to 4.3 trillion cubic feet of gas could be recovered from these tracts and others on Georges Bank that might be leased in the future.

Last spring and summer, both USGS and a consortium of oil companies drilled test holes on Georges Bank to determine the geological characteristics of the ocean bottom. Exploratory drilling by the petroleum industry to actually search for oil and gas, however, can not begin until tracts are leased in May.

The leasing process for the proposed May sale has progressed to the point where a draft Environmental Impact Statement has been prepared. Public hearings on the statement were held in December. The final Environmental Impact Statement, revised on the basis of comments made at the hearings, is expected in February.

What Impacts To Expect If Development Occurs

It is presently being assumed that the sale will be approved and leases will be issued. If oil and gas development occurs, there may be numerous environmental, social, and economic effects on New England.

The New England River Basins Commission, in cooperation with the New England coastal states and some federal agencies, is

preparing a report which estimates likely onshore impacts of Georges Bank petroleum activity on the New England region. It is designed to assist state and local officials plan for the siting of onshore petroleum facilities related to offshore development. Also, CAM has set up an OCS planning and technical assistance program to assess and plan for the possible impacts on Connecticut.

Because of (1) the distance between Connecticut and Georges Bank, (2) the problems which Long Island Sound's physical characteristics present in the transshipment of petroleum products in large tankers, and (3) the availability of suitable sites in Rhode Island and Southeastern Massachusetts, Connecticut will probably receive secondary rather than primary development impacts from OCS activity. (Secondary impacts are activities which support direct OCS-related or primary impact facilities.) For example, perhaps Connecticut would establish or expand industry supplying parts or materials for primary activities such as pipecoating yards. The likely primary development impacts for New England are as follows:

1. Service bases are generally the first facilities established after the lease sale. These serve as a link between shore and the offshore platforms. Initially they are small and temporary, but as discoveries of oil and gas are made they will increase in size and number.
2. As drilling progresses the oil companies will decide whether to transport the recovered resources to shore by marine pipeline or tankers. If sufficient oil is found a marine pipeline would be economically feasible.
3. The construction of an oil refinery is possible, but only if the crude oil production rate and supply are large enough to offset existing surplus capacity in refineries along the mid-Atlantic coast. It is not likely that Georges Bank alone could provide enough oil to sustain a refinery.
4. A marine terminal storage facility would be possible if the crude oil production were expected to exceed refinery capacity or if oil were to be brought ashore by tanker.

5. Natural gas production will require gas pipelines and a gas processing plant.
6. Pipecoating yards coat raw pipe sections with substances to protect them and permit them to sink. Initially pipes will be coated outside the region. As production continues coating yards may be located in New England.
7. The demand for platforms for the entire Atlantic OCS will determine if a platform fabrication yard is located in New England, since they can be produced at existing yards and towed to the region.

OCS related activities are similar to many other industrial activities in that they may cause some degradation of living and non-living resources in the vicinity of plant siting. None of these facilities appear to pose uncontrollable major environmental hazards. The drilling equipment would not be visible from land because the tracts are so far offshore. The maximum distance man can see at sea level is about 12 miles; the nearest tract is 47 miles from land.

Federal OCS Leasing Process

The process of leasing tracts is complex and often confusing. Below is a step-by-step description of the federal OCS leasing process.

1. Call for Nominations of Tracts.

The U.S. Department of the Interior identified a broad lease area on the Outer Continental Shelf and issued a call for nominations which was published in the Federal Register.

Industry, state government and environmental groups identified the tracts they wanted included or removed from the lease area.

2. Tract Selection.

The Department of Interior used the tract nominations and resource, environmental, technological, and economic information to select tracts to be analyzed in the Environmental Impact Statement. A list of selected tracts was published in the Federal Register.

3. Draft Environmental Impact Statement (EIS).

As required by the National Environmental Policy Act of 1969, the U.S. Bureau of Land Management (BLM) prepared a draft Environmental Impact Statement (EIS). The EIS includes a description of the marine and near-

shore environment, an analysis of possible impacts, mitigating measures proposed, a description of unavoidable adverse impacts, irreversible and irretrievable commitment of resources, and alternatives to the proposed action.

4. Public Hearings.

Environmental groups, the academic community, government agencies, industry, and the public are afforded the opportunity to testify verbally or in writing on the adequacy of the statement.

5. Final Environmental Impact Statement.

Taking into consideration the comments made at the public hearings and newly acquired information, the draft is revised into a final EIS.

6. Decision of the Secretary.

The Secretary of Interior uses the final EIS and public hearing comments as a basis for deciding if the sale should be held. If the decision is affirmative, tracts are selected and lease terms established.

7. Lease Sale.

The Lease Sale is run by BLM and is a competitive sealed bid system. At the sale all bids are opened and read publicly.

8. Decision to Accept or Reject Bids.

The Department of Interior evaluates bids in terms of its own appraisal of the tracts' value.

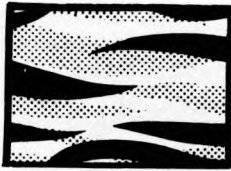
9. Issuance of Lease and Lease Contract.

The lease is issued after BLM accepts the bonus bid and first year's rent. USGS collects rents and royalties and supervises lease operations. Exploratory drilling must begin within 5 years or the lease is forfeited.

For further information on petroleum development on Georges Bank and its onshore impacts please contact the Coastal Area Management Program, 71 Capitol Avenue, Hartford, Connecticut-- 566-7404.

* * * *

Editor's Note: the CAM Program publishes Land's End, a quarterly newsletter about coastal issues and CAM activities. If you wish to receive Land's End, which is available free of charge, contact the CAM Program at the above address.



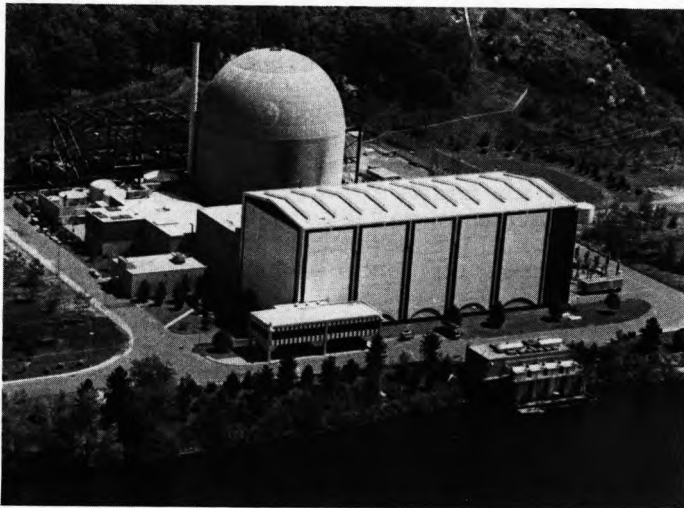
university of connecticut

INSTITUTE OF WATER RESOURCES

Research at UConn on Nuclear Power Plant Siting

The siting of large, thermal-electric generating stations, especially nuclear power plants, has become a controversial topic in the past few years. As the energy demands of the nation increase and the accompanying need for a self-sufficient energy supply becomes more acute, the construction of additional nuclear-powered generating plants in the United States may be a very realistic possibility.

Substantial public resistance has developed over the siting of many large electric generating stations, essentially because of the safety question of nuclear power generation and the environmental concerns over the plants' needs for substantial amounts of cooling water and their resultant thermal discharges. Virtually all large generating facilities in the United States today utilize either natural water bodies for once-through cooling or, where this is not feasible, evaporative cooling towers using a freshwater source are installed.



Connecticut Yankee Atomic Power Plant on the Connecticut River in East Haddam.
(Photo: Northeast Utilities)

To aid decision-makers in dealing with the complex pros and cons of this issue, a research project under the direction of Drs. Carlos Stern and Emma Verdick of the Agricultural Economics Department, was initiated at the University of Connecticut in 1974, funded by the Institute of Water Resources allotment grant program. The object of the research was to assess the technology, economics and environmental aspects of siting large nuclear power plants

in other than the conventional land-based locations, and to relate the findings to the impact each of these options would have on water resources. Three new technologies, floating nuclear plants, underground nuclear plants and salt-water cooling towers, were analyzed; the typical land-based, freshwater cooled installation served as the basis of comparison against which the proposed technologies were measured.

The majority of the research effort involved inquiries based on published reports and open files of government agencies and companies under contract with the government, discussions with experts, and independent evaluation and assessment by the investigators. In cases where environmental impact statements on specific projects have been submitted, a review of proposed, individual facilities was possible.

Floating Nuclear Plants

In assessing floating nuclear systems, it was found that the basic safety characteristics are not affected by whether the plant is mounted on a barge located three miles offshore or conventionally located on land. Similarly, the efficiency of the plant is not altered, and the same quantity of heat must be disposed of. However, in addition to not requiring valuable coastal land, floating plants offer the advantage of being more effective in dissipating waste heat than most shore-based plants. Far fewer people would be in relatively close proximity to a floating nuclear reactor and probably would be safer in cases of accidental releases of radioactivity. In cases of the loss of coolant accidents, floating plants have the advantage in that an immense amount of cooling water is immediately available.

The cost of the nuclear plant itself may well be somewhat less for floating than for land-based systems, because it is planned that floating plants would be fabricated on an assembly-line basis in a single factory, and towed, mounted on a barge, to the site. The total floating plant, however, including the breakwater, almost completely surrounding the plant and designed to withstand the most severe conditions of wind, tide and waves, and collision with a moving vessel, is expected to cost 10 to 20 percent more than an equivalent land-based plant. The electric utility companies would have to decide if the reduced lead time, better quality control, and the greater flexibility allowed in siting floating plants, would be worth the extra cost.

Although no firm plans now exist for the construction of a floating nuclear plant, installation of such a facility off the coast of southern New Jersey has been considered. The investigators on this project feel that until the necessary experience has been gained, the preferred location would be in semi-sheltered waters, such as bay or inlet areas, where a high degree of protection from major storms is available.

Salt-Water Cooling Towers

In theory, salt-water cooling towers have some major advantages over other cooling methods. They do not need to discharge any heat to the aquatic environment, and make no demands on the available fresh-water supply. They evaporate water for which there is little other use and of which there is no shortage. They use far less land area than cooling ponds, only about 1 percent. Salt-water cooling towers also reduce the need for remote-siting with the associated high transmission costs, and are less expensive than fresh-water cooling towers.

The major environmental question associated with this method is the effects of the salt escaping as drift through the top of the cooling tower. The chlorine present in salt can cause leaf burning and the sodium can alter soil characteristics. Many factors, such as the relative humidity, amount of rainfall and the actual amounts of salt at various stages in the plant growing cycle, can influence the extent of damage. The damages to the environment are also a function both of the amount of salt emitted by the cooling tower and the amount of naturally occurring background salt in the atmosphere. Vegetation near the ocean has adapted itself to relatively high background levels of salt. In humid areas, rain will wash excess salt away, although drought conditions may cause problem periods. Under adverse weather conditions, however, salt droplets can serve both to stabilize clouds and to stimulate precipitation by seeding.

Apart from the water vapor and salt tower emissions, there is a small but steady release of water directly from the system, called blowdown, which serves to limit the increase in salt concentration of the circulating water. Although the volume of the blowdown can be varied - a large volume resulting in more saline circulating water and less saline drift, and a smaller volume resulting in less saline circulating water and more saline drift - either alternative has both advantages and disadvantages to the surrounding environment.

Underground Nuclear Plants

Two major advantages are seen in locating nuclear power plants underground - safety and the possibility of locating the plants nearer to an urban center, so that

the large amounts of waste heat could more easily be utilized. Proponents claim that by building nuclear plants either in excavated, underground rock caverns or in back-filled, shallow cavities, an additional barrier will be present in the event of an accident. In either case, the land-use impacts would be minimized and the surface area could be more readily used. However, the underground reactor cannot be strictly isolated from the environment around it because of energy and cooling water needs.

As for disadvantages, building costs for underground plants have been estimated at between 10 and 25 percent higher than conventional above ground locations. In addition, studies have shown that use of the waste heat from these plants would not be of a great economic value. The difficulty of constructing a large complex facility in difficult working conditions and the subsequent problems of inspection and repair appear to have lessened any interest that the utilities, reactor manufacturers and federal agencies have had in this option.

Conclusion

As a result of the technology assessment explained partially above, the principal investigators feel that both floating nuclear plants and salt-water cooling towers probably present reasonable power plant siting alternatives and may have less impact on the environment than conventional nuclear plants. On the other hand, underground systems do not seem to have sufficient advantages to warrant undertaking the additional costs of construction and exposing urban populations to the increased risk. While there are still some issues that need to be resolved in implementing the use of floating plants and salt-water cooling towers, the investigators feel that with the studies now underway, within a few years, these issues will not delay the use of possibly safer and more environmentally sound alternatives.



Millstone Nuclear Generating Facility on Niantic Bay in Waterford, Connecticut.
(Photo: Northeast Utilities)

P.E.P. TALK

by Tom Richard Strumolo

Fireplaces:

How
Valuable
Are
They?



Fireplaces in almost all cases are designed for ornamental purposes. In cool damp climates a burning fireplace creates a cheery atmosphere with the advantage that a person can sit or stand in front of the fire and endure reduced house temperatures without discomfort.

Fireplaces are extremely inefficient heating systems; that is, your fireplace could be costing you energy and money instead of saving you some. In most situations it is unlikely that burning substantial amounts of wood in your fireplace will help save any considerable amount on your overall winter fuel bill.

Studies show that 85 or 90% of the radiant heat generated by the fireplace is lost up the chimney. Normally, the air needed to feed the fire is drawn in through cracks in the home, under doors or around windows, creating drafts. There is, of course, increased efficiency if the chimney is on an interior wall of the house, as an exterior chimney with three walls exposed to the outdoors claims much more heat.

A severely cold winter and higher energy costs forces us to weigh the aesthetic value of fireplaces against the potential heat losses. Consider the following:

- Even if you never use your fireplace, have the flue and damper checked. A normally loose fitting damper will allow great amounts of heat to disappear. Consider having a tight seal installed. At the very least, be sure that the damper is closed at all times.

- For normal use of your fireplace, consider fitting it with a fresh air feed so that drafts can be minimized.
- If supplementing your oil, gas, or electric heating system is your aim, consider putting a wood-burning stove in or in front of the fireplace. The chimney can be sealed with a sheet of steel fitted around the stovepipe. The more efficient the stove, the less fire that will be visible - but the more heat you'll feel.
- If you must view the fire or if the presence of a stove is impossible in your home, seriously consider installing tempered glass fireplace doors. These maximize the amount of usable heat by giving you more control of the air flow and by keeping more of the hot air in the room. Since the flue can be effectively sealed by closing the doors, the fire is more easily controlled, and you may go along to bed without dousing the flames.
- Other systems have been designed with varying measures of efficiency. One includes duct work that draws some of the escaping hot air into the room. Another system utilizes electric motors to blow the hot air out of the fireplace onto the room's floor where it does the most good. A third system replaces the masonry firebox with a cast iron or steel one to better radiate heat back into the room.

If you decide to install or upgrade a supplemental heating system, whether you choose a source such as an electric space heater, kerosene heater, woodburning stove, free standing or built in fireplace, remember that all of these are potentially dangerous and extreme caution as to design and use should be exercised.

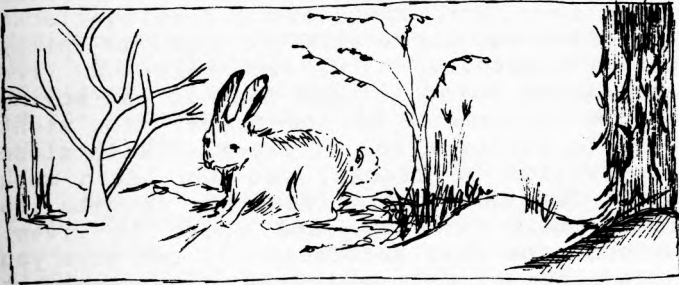
Nature Notes

By Penni Sharp

Your January Environment

January is:

Cardinals bright against the snow. . .frozen ponds. . .rafts of Scaups on the Sound. . .the constellation Orion in the winter sky. . .snow lice . . .cottontails browsing on twigs and weeds. . .flocks of Evening Grosbeaks visit feeders. . .Shrews and mice are active. . .tree branches silhouetted against the sky. . .



Mammals in Winter

In New England, the majority of mammals remain active throughout the long winter months. Many of them, rabbits, weasels and deer for example, face the hardships of winter directly, searching for their food on a daily basis. Others, such as mice and squirrels depend also upon caches of food that they have previously stored.

A small number of mammals hibernate, i.e., become deeply dormant during winter. Hibernators include bats, chipmunks, woodchucks and jumping mice. During true hibernation, these mammals are practically motionless. They often assume a curled up position with the head between the hind legs. Several physiological phenomena accompany true hibernation. Respiration rates become slow and irregular, body temperature falls low and the heart beats slowly and irregularly.

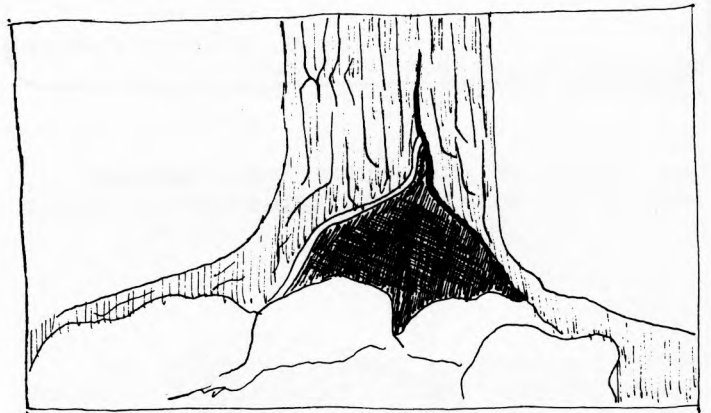
While it would probably prove difficult to observe hibernating mammals during winter, this time of year can afford one with good opportunities to study some of our active mammals. These animals can be observed, if not directly, through their signs which may be more apparent during the winter season. Once you have discovered an animal sign and have determined which animal has made it, make a study of that particular animal's behavior and habits. With this knowledge, you should be able to determine the most opportune time and place for observing the animal first hand. Most animals have a preferred time of day for moving about and a large number are nocturnal.

Animal Signs

The following are some animal signs to look for when you are outdoors.

Animal Dwellings

A burrow in an open field, under the roots of a tree or by the bank of a stream indicates the presence of an animal. Depending upon its size and location, it may be home to a woodchuck, fox, skunk, otter or mink. Tunnels made by moles may be occupied by mice after the mole has moved on. Caverns in rock outcroppings provide homes for porcupines or bobcats. Hollow Trees may be occupied by raccoons or opossums. Smaller tree cavities may house flying squirrels or grey squirrels. Lodges made of reeds and twigs in the case of muskrats and mud and branches by beavers provide shelter for these two species. Look for their homes in ponds and streams.



Other Signs

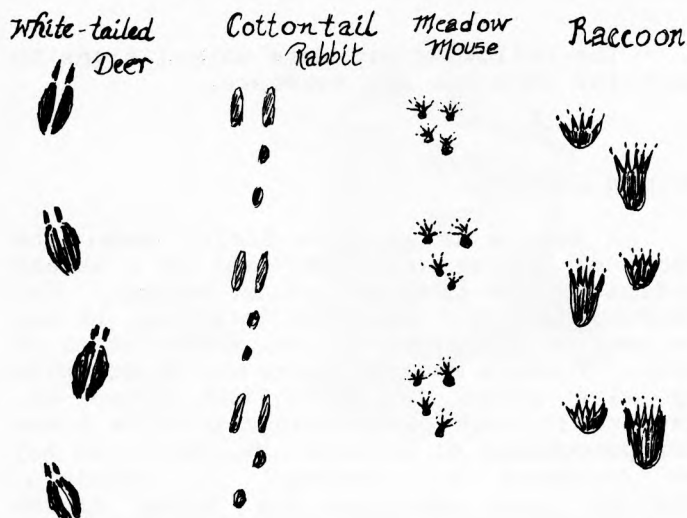
"Yarding grounds" are matted down hollows in thickets or dense forests which serve as the bedding-down places for deer. Torn bark on a tree caused by a deer rubbing the velvet on its antlers. Runways, a network of grass tunnels in fields used by mice and moles, or trails around ponds and streams which result from muskrat activity. Feeding signs: These are many and varied---animal remains (feathers, fur or bone), seed husks, nutshells, gnawed bark and twigs, nibbled pine cones, stored food. Animal scat or droppings that indicate what particular species has passed that way. What signs can you add to this list?

(Cont. on next page.)

Tracks

Perhaps the most obvious winter animal signs occur after a fresh snowfall. Fresh tracks in the snow are proof of the variety of animals in our backyards, fields and forests.

Here are the tracks of some of Connecticut's mammals.



After the next snowfall, go outside and look for tracks. What kind of animal made the track? Was it a long legged animal? These tracks are comparatively far apart and form a zig-zag line. Was it a short and long legged animal such as a rabbit? These animals often move in jumps and make paired tracks of hind feet in front of paired tracks of front feet. Was it a heavy animal?

Skunks or porcupines have relatively short legs and waddle along forming tracks that have two lines with the imprints fairly close together. Can you tell what the animal was doing, or how fast it was moving by the appearance of the track? You might wish to follow a set of tracks. With close observation of tracks, you can learn much about how an animal lives, how it gets its food, what it eats, and where it lives. Welcome the next snowfall! It can give you added insight to some of the other creatures who dwell among us.

Trailside Botanizing

by G. Winston Carter

WINTERBERRY
(*Ilex verticillata*)



Winterberry, or black alder as it is sometimes called, is one of our native hollies. Throughout the spring and summer

months the shrub may go unnoticed because of its small inconspicuous flowers; however, in the fall, one is sure to see its bright red berries. When the autumn foliage is past its peak and much of the color of the woodland is fading, these berries preserve a dash of color which persists on bare branches throughout the winter, hence the common name. The species name is derived from the whorled leaf arrangement.

When one thinks of holly, it is usually of the American holly (*Ilex opaca*) which is quite similar to European holly (*Ilex aquifolium*). It is these two species of holly that we usually associate with Christmas decorations; however, there are about 280 species of holly in the world with most, but not all of them, found in America. There are about 15 species found in the United States. These are confined to the East and are usually found in moist woods. Of this number, only about half are shrubs instead of trees and only about half are evergreen.

Winterberry is one of the hollies which sheds its leaves in the fall and therefore is included as one of the species which is not an evergreen.

Its leaves have been used as a substitute for tea although not as good a substitute as some of the related hollies, which are believed to have a caffein-like substance in their leaves. The tea of the Winterberry was also used to clear acne. During the summer, the leaves can be boiled and cooled for a drink. The berries are said to be poisonous.

At RHAM High School

Helping DEP... And Connecticut

One August day in 1973 Peter Houle, DEP District III Area Manager, asked one of his past high school teachers to help him design and construct a fish trap for a DEP pike study in the Connecticut River. The teacher, Dave Mordavsky, Coordinator of RHAM High School's Industrial Arts Department obliged and from their meeting developed a unique program which has benefited literally hundreds of students and thousands of Connecticut citizens.

"During the past four years, our students have worked on dozens of projects for DEP," Mordavsky said. "Everything from the construction of stainless steel fireplaces to the planning and building of 50 outhouses for park use."

Houle, himself a graduate of RHAM, finds RHAM's services to DEP and the state invaluable. "The kids are doing an outstanding job," he said. "They handle projects for us in areas where our time and resources are short. DEP provides the materials and RHAM provides the manpower."



Putting the Finishing Touches on a DEP Deer Carrying Rack. (Photo: Watson & Coburn, RHAM High)

RHAM student projects in past years included:

- A ticket booth now in service at Rocky Neck State Park
- A biology lab table, complete with sinks, cabinets and formica counters, for Region III headquarters in East Hampton.
- A beaver scope for underwater observations of beaver hutches as an aid in reproduction rate studies.
- The designing, blueprinting, and construction of ten duck blinds now in good use on the lower part of the Connecticut River near Lord's Island
- The designing and constructing of a railroad crossing cabin, and life guard stands
- Building of 20 goose nesting platforms
- Fabrication of 24 validating machine boxes for use at state campgrounds
- The rebuilding and maintenance of DEP owned outboard motors and small engines
- The construction of 30 "Rules and Regulations" boards for state boat sites

One RHAM-DEP project completed in 1975 was of an "emergency" nature. DEP personnel found that shad passing upstream through the newly completed Rainbow Dam fishway on the Farmington River in Windsor were having difficulty due to high water volume and lack of sufficient rest areas in the sluice. The students responded by prefabricating over two hundred and fifty specially designed concrete blocks which they later strategically positioned in the fishway. The idea worked -- the holding areas allow the shad to rest as they maneuver upward through the 720' long structure.

According to Mordavsky, the RHAM students are currently building deer carrying racks for conservation officers' vehicles and two skiffs with trailing live cars for DEP's trout stocking program.

(Cont. on next page.)

Mordavsky said the students are also involved in many "smaller" jobs such as the future entrance sign for Talcott Mountain State Park, the cedar picket fence which will soon find a home at Gillette Castle State Park, the culverts to be positioned on old state logging roads through the region, and a coat rack made out of beaver chewings for the regional office.

Such an impressive list of accomplishments naturally raises curiosity about the facilities at RHAM High. RHAM's new Industrial Arts wing is just five years old and thoroughly equipped to handle a full range of projects. Facilities include provisions for drafting, wood technology, plastics technology, graphic arts, electricity, electronics, metalworking and power mechanics.

Mordavsky is quick to point out that the entire department is involved in the work. "It's not unusual for 3 or 4 of our instructors and their classes to be working on different aspects of a job together," he said. "But actually it's more than a job. For the kids it's a real learning experience."

"The Hebron-Andover-Marlborough community should be proud of these students," Houle added. "I know DEP is very appreciative of RHAM's cooperation and help."



RHAM Student Overhauling Region III Outboard Engine. (Photo: Watson & Coburn, RHAM High)

* * *

Our thanks to Helen Vanty, student at RHAM, for providing the background material for this article.

Dows Receives Conservation Award



Officer Dows (l.) receiving award from Warren Page, representative of Shikar-Safari Club International.

"Officer Dows was selected to receive the award not only for his outstanding performance as a Conservation Officer on the job but also for his intense interest in working with youth groups on his own time in the conservation and preservation of our natural resources," DEP Deputy Commissioner Ted Bampton said.

Kirkley Dows was appointed as a Conservation Officer on January 14, 1966, and he was assigned to District 3 in the patrol area of Columbia, Hebron, Marlborough, Colchester, Portland, Salem and East Haddam. He is presently assigned to Region III and resides at Waterhole Road, Colchester. He is married and has three children.

Conservation Officer Kirkley F. Dows was selected by DEP's Law Enforcement Unit as Connecticut's nominee to receive The Shikar-- Safari Club International Wildlife Officer of the Year Award. This award is presented to the law enforcement officer of each state who has made the greatest contribution to the conservation of our natural heritage during the year.



Permits Issued

Nov.-Dec., 1976

Air Compliance

December 1
Bolton Veterinary Hospital
Permit to construct and operate a pathological incinerator on premises

December 1
Siemens Corp.
Permit to construct and operate a boiler on premises in Cheshire

December 1
Automatic Comfort Corp.
Conditional permit to test operate a truck loading rack with thermal oxidizer on premises in East Hartford

December 2
City of New Haven
Permit to construct a sludge burning incinerator at East Shore Treatment Plant

December 2
American Cyanamid Co.
Permit to construct a boiler on premises in Stamford

December 2
Suisman and Blumenthal
Permit to operate two diesel stationary engines on premises in Hartford

December 3
Suisman and Blumenthal
Permit to operate a scrap metal shredder with air separation system on premises in Hartford

December 9
O & G Industries
Permit to operate a concrete batch plant in Danbury

December 9
Tanwil Realty
Permit to construct a boiler in Bridgeport

December 9
Town of Bethel
Permit to operate a pathological incinerator at the Bethel Dog Pound

December 9
United Technologies Corp., P & W A.
Permit to operate a turbine development engine in East Hartford

December 9
Middlesex Memorial Hospital
Permit to construct a boiler on premises in Middletown

December 9
Sponge Rubber Products
Permit to Construct and operate a boiler at Plant No. 6 in Shelton

December 14
General Electric Company
Permit to construct and retain a storage silo for polyethylene pellets in Bridgeport

December 15
Killingly Wastewater Treatment Plant
Conditional permit to operate a sewage sludge incinerator

December 15
D'Addario Services
Conditional permit to operate a hot mix asphalt plant in Milford

December 17
Conn. Yankee Greyhound Racing, Inc.
Temporary permit to operate the Plainfield Greyhound Race Track

Water Compliance

October 28
Paul's Diesel Service, Inc.
Permit to discharge treated wastewater to Bridgeport sewage system

November 3
Masti-Kure Products Co., Inc.
Permit to discharge treated sanitary and antibiotic synthesis wastewater in Norwich

November 17
Nuclear Technologies Corp.
Permit to discharge floor wash and final rinse water to groundwaters of Raymond Brook watershed in Hebron

November 23
Groton Medical Park, Inc.
Permit to discharge domestic wastewater to Groton municipal sewer system

Water Resources

November 29
Town of Greenwich
Permit to install and maintain 21 pilings at existing boat docking facility in Greenwich Harbor

November 29
Town of Stratford
Permit to remove and replace timber dock and stone rip-rap in Housatonic River at Stratford

December 1
Hedgebrook Estates, Inc.
Permit to construct a pond on property in Stamford

Permits Issued (cont.)

Water Resources

December 6

Robert J. Greene

Permit to place fill within a designated inland wetland in Wallingford

December 7

Spencer C. Williams

Permit to maintain existing docks, piles and floats in Keeney Cove in Waterford

December 7

Edmond D. Sitty

Permit to maintain existing bulkheads and floats in Niantic River at Waterford

December 9

Town of Wethersfield

Permit to construct building riverward of channel encroachment lines of Conn. River

December 21

DEP Parks & Recreation Unit

Permit to construct and maintain stone extension to Sherwood Pt. and also improve existing groin at Sherwood Is. State Park in Westport

December 21

Roger Thoele

Permit to construct and maintain a pier, ramp, 14 piles and 2 floats in Bermuda Lagoon in Westport

Soil Scientist Position Open

The Department of Environmental Protection is seeking a soils scientist with a Master's Degree and two years experience or equivalent for employment in its Water Resources Unit, Inland Wetlands Program.

The individual selected will perform duties relating to the interpretation, classification, mapping and research of soil types in regards to Connecticut's Inland Wetlands Act.

Candidates for the position must possess a considerable knowledge of the science of soils and must have the following experience and training:

A Master's Degree in biology, physical or earth science, including 15 semester hours in soils, or in soil science, and two (2) years' employment in the

field of soil classification, or graduation from college (graduation shall be considered successful completion of a four-year college course or its equivalent) in biology, physical or earth science, including 15 semester hours in soils or in soil science and three (3) years' employment in the field of soil science or not less than seven (7) years' progressively responsible employment in the field of soil classification, or an equivalent combination, in number of years, of the above college training and experience.

A competitive examination for the position will be held. For applications and additional information contact Earl Carini, Director of DEP Personnel, Room 129, State Office Building, Hartford, Connecticut 06115. Tel: (203) 566-3468.

DEP citizens' bulletin

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